



Photos: Prototype Laptop

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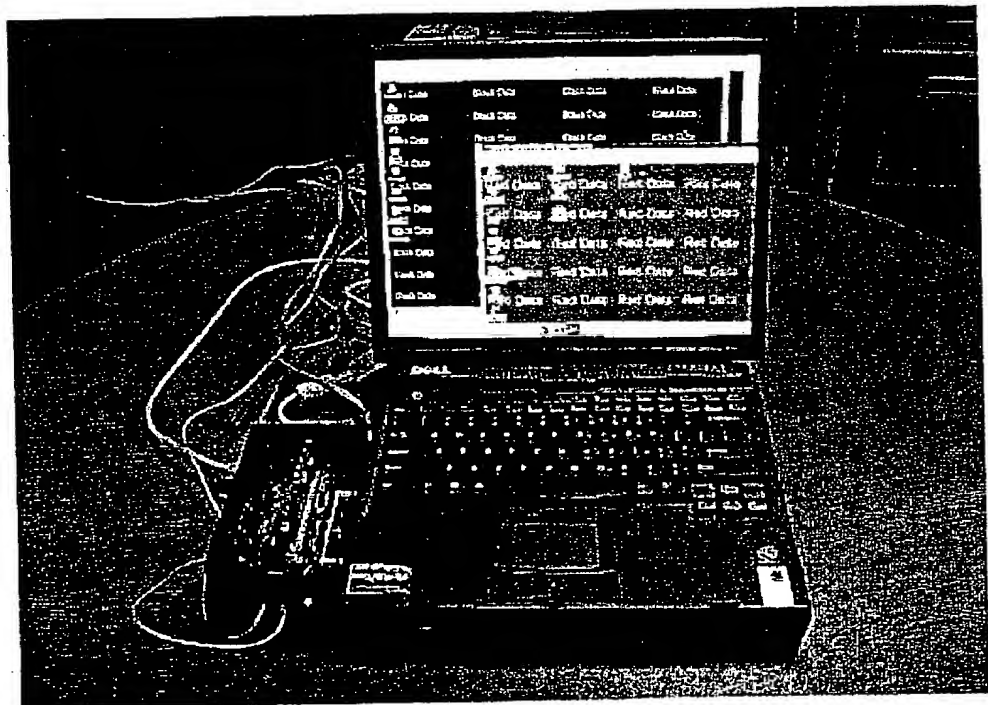
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The NetTop Prototype Laptop was created from scratch by Major Dennis Ruck as part of the response to the NSASAB concern. This paved the way for the project as it currently stands. This laptop was built in [REDACTED] and the project was assigned to the Advanced Research Prototype Solutions (ARPS) team in [REDACTED].

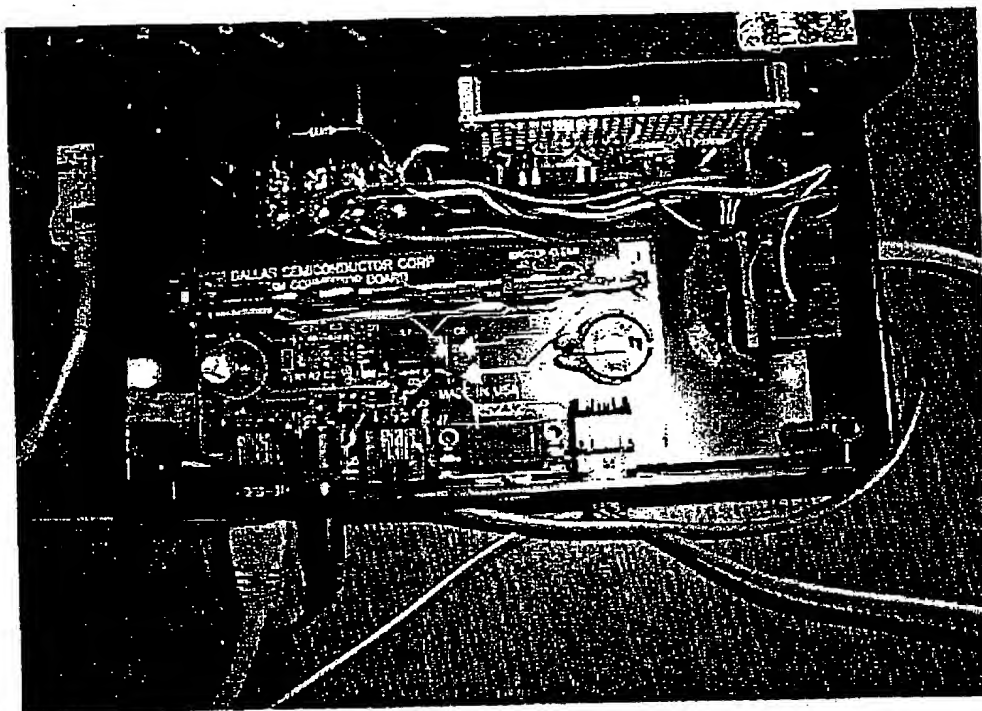


The picture above depicts a NetTop configuration supporting two networks (classified and unclassified). The separate networks are represented by the Windows NT desktops on the computer screens, marked Red Data and Black Data. These complete Windows NT desktops are virtual machines that are connected to the identified networks. Not shown are two more virtual machines,

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an inline network encryptor (INE) running IPSEC and a filtering router (FR). The INE has two virtual network interface cards (NIC) and the FR has three NICs. Data from the Red Data desktop is sent to the INE where it is first encrypted and then sent to FR. The FR sends the data from the INE to the real NIC in the computer. The Black Data desktop sends data to the third virtual NIC in the FR where it is sent on to the real NIC in the computer.

The device on the left of the picture is used to test the health of the virtual machines. This device has the ability to interrupt communications (phone or ethernet) if a VM does not perform as expected.



The IARO developed an optional assurance add-on for those systems which require it. This add-on routinely tests the operation of the VMs. If a VM does not respond to this test, it can interrupt communications. The add-on attaches to a virtual hub where it can communicate with the VMs. It was built using a Dallas Semiconductor TINI Java Computer. The TINI (Tiny InterNet Interface) executes JAVA programs and contains a fully functional TCP/IP Ethernet interface. Additional circuitry is added to interrupt the NetTop's network connection if a failure is detected.

A [NetTop animation](#) (requires the Shockwave-Flash plug-in) illustrates the concept of the add-on depicted in the second picture on this page.

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